

1    1.(original) A pharmaceutical composition for treating osteoporosis comprising at least one  
2    zwitterionic phospholipid and at least one bisphosphonate.

1    2.(original) The composition of claim 1, wherein the zwitterionic phospholipid is present in an  
2    amount sufficient to reduce GI toxicity of the bisphosphonate and the bisphosphonate is present in  
3    an amount sufficient to reduce bone resorption.

1    3.(original) The composition of claim 1, wherein the zwitterionic phospholipid is present in an  
2    amount sufficient to reduce GI toxicity of the bisphosphonate and improve bisphosphonate bio-  
3    availability when the composition is taken with food and the bisphosphonate is present in an amount  
4    sufficient to reduce bone resorption, increase in bone density and/or reduce bone fractures.

1    4.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about  
2    0.1 mg per dose and about 1000 mg per dose and a ratio of bisphosphonate to zwitterionic  
3    phospholipid is between about 1:0.1 and about 1:100.

1    5.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about  
2    1 mg per dose and about 500 mg per dose and a ratio of bisphosphonate to zwitterionic phospholipid  
3    is between about 1:0.5 and about 1:50.

1    6.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about  
2    2 mg per dose and about 50 mg per dose and a ratio of bisphosphonate to zwitterionic phospholipid  
3    is between about 1:1 and about 1:10.

1    7.(original) The composition of claim 3, wherein the amount of bisphosphonate is between about  
2    2 mg per dose and about 20 mg per dose and a ratio of bisphosphonate to zwitterionic phospholipid  
3    is between about 1:1 and about 1:5.

1    8.(original) The composition of claim 1, wherein the zwitterionic phospholipid is present in an  
2    amount sufficient to reduce GI toxicity of the bisphosphonate and the bisphosphonate is present in  
3    an amount sufficient to reduce bone resorption, increase in bone density and/or reduce bone

1 fractures.

1 9.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount  
2 between about 0.1 mg per dose and about 1000 mg per dose and a ratio of bisphosphonate to  
3 zwitterionic phospholipid is between about 1:0.1 and about 1:100.

1 10.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount  
2 between about 1 mg per dose and about 500 mg per dose and a ratio of bisphosphonate to  
3 zwitterionic phospholipid is between about 1:0.5 and about 1:50.

1 11.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount  
2 between about 2 mg per dose and about 50 mg per dose and a ratio of bisphosphonate to zwitterionic  
3 phospholipid is between about 1:1 and about 1:10.

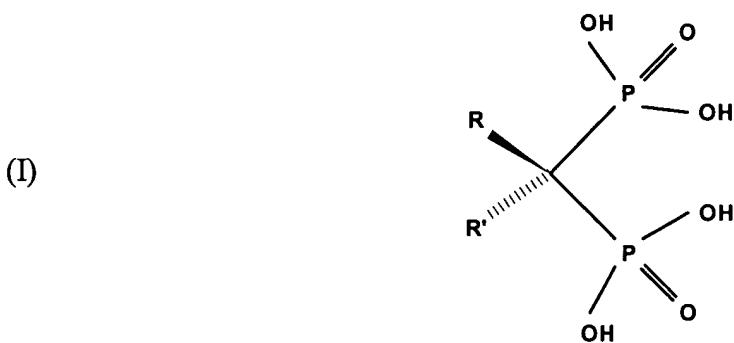
1 12.(original) The composition of claim 8, wherein the bisphosphonate is present in an amount  
2 between about 2 mg per dose and about 20 mg per dose and a ratio of bisphosphonate to zwitterionic  
3 phospholipid is between about 1:1 and about 1:5.

1 13.(original) The composition of claim 1, wherein the zwitterionic phospholipid increases the bio-  
2 availability of the bisphosphonate from about 2 to about 20 fold.

1 14.(original) The composition of claim 1, wherein the bisphosphonate is in its zwitterionic form  
2 and forms an ionic association complex with the zwitterionic phospholipid.

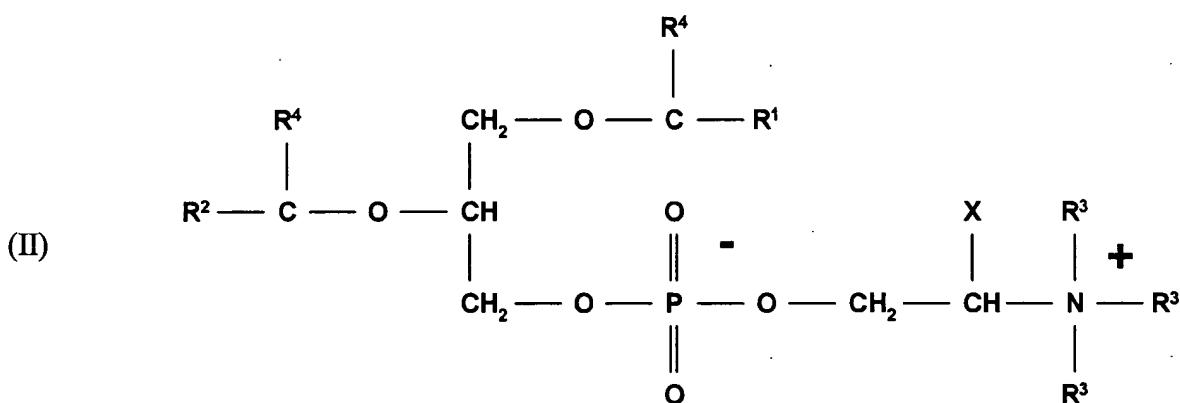
1 15.(original) The composition of claim 1, further comprising a colloidal metal, a metal complex  
2 or a mixture or combination thereof.

1 16.(original) The composition of claim 1, wherein the bisphosphonate is characterized by the  
2 general formula (I):



11 where R' is H, OH or Cl and R is: (a) an alkyl group having 1 to 6 carbon atoms, optionally  
12 substituted with amino, alkylamino, dialkylamino or heterocyclyl, where the alkyl groups in  
13 alkylamino and dialkylamino substituents have 1 to 5 carbon atoms and are the same or different in  
14 the case of the dialkylamino substituted alkyl groups; (b) a halogen; (c) an arylthio, preferably  
15 chlorosubstituted; (d) a cycloalkylamino having 5 to 7 carbon atoms; or (e) a saturated five or six  
16 membered nitrogen containing heterocyclyl having 1 or 2 heteroatoms.

1 17.(original) The composition of claim 1, wherein the phospholipid is characterized by the of  
2 general formula (II):



where R<sub>1</sub> and R<sub>2</sub> are saturated or unsaturated substitutions ranging from 8 to 32 carbon atoms; R<sub>3</sub> is H or CH<sub>3</sub>, and X is H or COOH; and R<sub>4</sub> is =O or H<sub>2</sub>.

1 18.(original) The composition of claim 1, wherein the bisphosphonate is selected from the group

1 consisting of 3-amino-1-hydroxypropylidene-1,1-bisphosphonic acid (pamidronate), 4-amino-1-  
2 hydroxybutylidene-1,1-bisphosphonic acid (alendronate), N,N-dimethyl-3-amino-1-  
3 hydroxypropylidene-1,1-bisphosphonic acid (mildronate, olpadronate), I-hydroxy-3-(N-methyl-N-  
4 pentylamino) propylidene-1,(N-methyl-N-pentylamino) propylidene-1, 1-bisphosphonic acid  
5 (ibandronate), I-hydroxy-2-(3-pyridyl) ethylidene-1,(3-pyridyl) ethylidene-1, 1-bisphosphonic acid  
6 (risedronate), 1-hydroxyethylidene-1,1-bisphosphonic acid (etidronate), 1-hydroxy-3-(1-pyrrolidinyl)  
7 propylidene-1,1-bisphosphonic acid, 1-hydroxy-2- (1-imidazolyl) etylidene-1, 1-bisphosphonic(1-  
8 imidazolyl) etylidene-1, 1-bisphosphonic acid (zoledronate), 1-hydroxy-2- (imidazo [1,2-a] pyridin-  
9 3-yl) ethylidene-1,1-bisphosphonic acid (minodronate), 1- (4-chlorophenylthio) methylidene-1, 1-  
10 bisphosphonic acid (tiludronate), 1- (cycloheptylamino) methylidene-1,1-bisphosphonic acid  
11 (cimadronate, incadronate), 6-amino-1-hydroxyhexylidene-1,1-bisphosphonic acid (neridronate) and  
12 pharmaceutically acceptable salts thereof and mixtures and combinations thereof.

1 19.(original) The composition of claim 1, wherein the bisphosphonate is selected from the group  
2 consisting of risedronate, alendronate, pamidronate and their pharmaceutically acceptable salts and  
3 mixtures and combinations thereof.

1 20.(original) The composition of claim 1, wherein the zwitterionic phospholipid is selected from  
2 the group consisting of phosphatidyl cholines, phosphatidyl ethanolamines, phosphatidylinositol,  
3 phosphatidyl serines sphingomyelin or other ceramides, phospholipid containing oils, and mixtures  
4 and combination thereof.

1 21.(original) The composition of claim 1, wherein the zwitterionic phospholipid is selected from  
2 the group consisting of phosphatidyl choline (PC), dipalmitoylphosphatidylcholine (DPPC), other  
3 disaturated phosphatidyl cholines, lecithin oils and mixture and combinations thereof.

1 22.(original) A pharmaceutical composition, for treating osteoporosis, comprising a  
2 pharmaceutically effective amount of a bisphosphonate to reduce bone resorption and a sufficient  
3 amount of a zwitterionic phospholipid to reduce GI toxicity and increase the bio-availability of the  
4 bisphosphonate.

1       23.(original) The composition of claim 22, the effective amount of the bisphosphonate comprises  
2       between about 0.1 mg per dose and about 1000 mg per dose and the sufficient amount of zwitterionic  
3       phospholipid is such that a ratio of bisphosphonate to zwitterionic phospholipid is between about  
4       1:0.1 and about 1:100.

1       24.(original) The composition of claim 22, further comprising a colloidal metal, a metal complex  
2       or mixtures or combinations thereof.

1       25.(original) A pharmaceutical composition comprising a carrier, a pharmaceutically effective  
2       amount of a bisphosphonate to reduce bone resorption and a sufficient amount of a zwitterionic  
3       phospholipid to reduce GI toxicity and increase the bio-availability of the bisphosphonate, where the  
4       phospholipid is in its zwitterionic form and the bisphosphonate is in its zwitterionic form.

1       26.(original) The composition of claim 25, wherein effective amount of the bisphosphonate is  
2       between about 0.1 mg per dose and about 1000 mg per dose and the sufficient amount of zwitterionic  
3       phospholipid is such that a ratio of bisphosphonate to zwitterionic phospholipid is between about  
4       1:0.1 and about 1:100.

1       27.(original) The composition of claim 25, further comprising a colloidal metal, a metal  
2       complex or mixtures or combinations thereof.

1       28.(original) The composition of claim 25, wherein the medication is to be taken orally.

1       29.(original) The medication of claim 25, wherein the medication is to be taken orally with food.

1       30.(original) An oral medication for treating osteoporosis comprising an solid object comprising  
2       an inert carrier, a pharmaceutically effective amount a bisphosphonate to reduce bone resorption and  
3       an amount of a zwitterionic phospholipid sufficient to reduce GI toxicity and increase the bio-  
4       availability of the bisphosphonate.

1 31.(original) The medication of claim 30, wherein the effective amount of the bisphosphonate is  
2 between about 0.1 mg per dose and about 1000 mg per dose and the sufficient amount of zwitterionic  
3 phospholipid is such that a ratio of bisphosphonate to zwitterionic phospholipid is between about  
4 1:0.1 and about 1:100.

1 32.(original) The medicament of claim 30, further comprising a colloidal metal, a metal complex  
2 or a mixture or combination thereof.

### 1 33.(withdrawn)

1 34.(withdrawn)

1 35.(withdrawn)

1 36.(withdrawn)

1 37.(withdrawn)

1 38.(withdrawn)

1 39.(withdrawn)

1 40.(withdrawn)

1 41.(withdrawn)

## 42.(withdrawn)

### 43.(withdrawn)

44.(Withdrawn)

1 45.(withdrawn)

1 46.(previously added) A pharmaceutical composition for treating osteoporosis comprising  
2 at least one zwitterionic phospholipid and at least one bisphosphonate, where the phospholipid is in  
3 its zwitterionic form and the bisphosphonate is in its zwitterionic form.

1 47.(previously added) A pharmaceutical composition, for treating osteoporosis, comprising  
2 a pharmaceutically effective amount of a bisphosphonate to reduce bone resorption and a sufficient  
3 amount of a zwitterionic phospholipid to reduce GI toxicity and increase the bio-availability of the  
4 bisphosphonate, where the phospholipid is in its zwitterionic form and the bisphosphonate is in its  
5 zwitterionic form.

1 48.(previously added) An oral medication for treating osteoporosis comprising an solid object  
2 comprising an inert carrier, a pharmaceutically effective amount a bisphosphonate to reduce bone  
3 resorption and an amount of a zwitterionic phospholipid sufficient to reduce GI toxicity and increase  
4 the bio-availability of the bisphosphonate, where the phospholipid is in its zwitterionic form and the  
5 bisphosphonate is in its zwitterionic form.